

PATENT COOPERATION TREATY

PCT

23 DEC 2004
10/519210

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 0000053691	FOR FURTHER ACTION <small>see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.</small>	
International application No. PCT/EP 03/07028	International filing date (day/month/year) 02/07/2003	(Earliest) Priority Date (day/month/year) 05/07/2002
Applicant BASF AKTIENGESELLSCHAFT		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 9 sheets.
☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☒ contained in the international application in written form.

☒ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☒ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1
☐ None of the figures.

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Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-8

Plasmid vectors for targeted integration of filamentous fungi and various embodiments thereof.

2. Claims: 9-22

Selection markers comprising a nucleic acid sequence encoding a polyketide synthetase fragment, use thereof for targeted transformation of filamentous fungi, vectors and expression cassettes comprising the said selection markers as well as methods of transformation of filamentous fungi using the same.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/80 C12N15/52 C12N9/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

MEDLINE, EPO-Internal, WPI Data, PAJ, EMBASE, CHEM ABS Data, SCISEARCH, BIOTECHNOLOGY ABS, SEQUENCE SEARCH, EMBL, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X (D1)	FENG B ET AL: "Molecular cloning and characterization of WdPKS1, a gene involved in dihydroxynaphthalene melanin biosynthesis and virulence in Wangiella (Exophiala) dermatitidis." INFECTION AND IMMUNITY. UNITED STATES MAR 2001, vol. 69, no. 3, March 2001 (2001-03), pages 1781-1794, XP002247661 ISSN: 0019-9567 cited in the application page 1783, right-hand column; figure 1 --- -/--	1-3

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

8 March 2004

Date of mailing of the international search report

21 04 2004

Name and mailing address of the ISA

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,A (D2)	<p>SHIBAYAMA MAYUMI ET AL: "Suppression of tandem-multimer formation during genetic transformation of the mycotoxin-producing fungus <i>Penicillium paxilli</i> by disrupting an orthologue of <i>Aspergillus nidulans</i> <i>uvrC</i>."</p> <p>CURRENT GENETICS. UNITED STATES OCT 2002, vol. 42, no. 1, October 2002 (2002-10), pages 59-65, XP002247662 ISSN: 0172-8083 page 60, right-hand column, paragraph 1; figure 1</p>	1-8
A (D3)	<p>PUNT P J ET AL: "TRANSFORMATION OF ASPERGILLUS BASED ON THE HYGROMYCIN B RESISTANCE MARKER FROM ESCHERICHIA COLI" GENE, ELSEVIER BIOMEDICAL PRESS. AMSTERDAM, NL, vol. 56, 1987, pages 117-124, XP001093695 ISSN: 0378-1119 the whole document</p>	
A (D4)	<p>ROYER J C ET AL: "Deletion of the Trichodiene Synthase Gene of <i>Fusarium venenatum</i>: Two Systems for Repeated Gene Deletions"</p> <p>FUNGAL GENETICS AND BIOLOGY, SAN DIEGO, CA, US, vol. 28, no. 1, October 1999 (1999-10), pages 68-78, XP000864301 ISSN: 1087-1845 the whole document</p>	
A (D5)	<p>FERNÁNDEZ-MARTÍN R ET AL: "Homologous recombination and allele replacement in transformants of <i>Fusarium fujikuroi</i>"</p> <p>MOLECULAR AND GENERAL GENETICS, SPRINGER VERLAG, BERLIN, DE, vol. 263, no. 5, June 2000 (2000-06), pages 838-845, XP002212989 ISSN: 0026-8925 the whole document</p>	
A (D6)	<p>WO 99 46362 A (IOGEN CORP) 16 September 1999 (1999-09-16) figures 1-3; examples 5-7</p>	
	<p style="text-align: center;">-/--</p>	

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X (D7)	TSAI H F ET AL: "The developmentally regulated alb1 gene of <i>Aspergillus fumigatus</i> : its role in modulation of conidial morphology and virulence." JOURNAL OF BACTERIOLOGY. UNITED STATES JUN 1998, vol. 180, no. 12, June 1998 (1998-06), pages 3031-3038, XP002264291 ISSN: 0021-9193 page 3031, right-hand column, paragraph 2 -page 3032, right-hand column, paragraph 4; figures 2,4	9-13, 17-20
X (D8)	FENG G H ET AL: "Characterization of the polyketide synthase gene (pksL1) required for aflatoxin biosynthesis in <i>Aspergillus parasiticus</i> ." JOURNAL OF BACTERIOLOGY. UNITED STATES NOV 1995, vol. 177, no. 21, November 1995 (1995-11), pages 6246-6254, XP002264292 ISSN: 0021-9193 page 6246, right-hand column, paragraph 3 -page 6248, right-hand column, paragraph 1; figures 1,2; table 1	9-12,17, 18
X (D9)	YE X ET AL: "A color-selectable and site-specific integrative transformation system for gene expression studies in the dematiaceous fungus <i>Wangiella</i> (<i>Exophiala</i>) <i>dermatitidis</i> ." CURRENT GENETICS. UNITED STATES OCT 1999, vol. 36, no. 4, October 1999 (1999-10), pages 241-247, XP002212990 ISSN: 0172-8083 page 242, right-hand column, last paragraph -page 245, left-hand column, paragraph 2; figures 1,2; table 1	9-12,17, 18
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X (D10)	MAYORGA M E ET AL: "Isolation and molecular characterization of the <i>Aspergillus nidulans</i> wA gene." GENETICS. UNITED STATES SEP 1990, vol. 126, no. 1, September 1990 (1990-09), pages 73-79, XP002264293 ISSN: 0016-6731 page 74, right-hand column, paragraph 2 -page 77, left-hand column, paragraph 1; figures 1-4	9-12, 17-20
A (D11)	-& DATABASE EMBL 'Online! EBI; 8 December 1992 (1992-12-08) MAYORGA M E: "Aspergillus nidulans wA gene for polyketide synthase" Database accession no. X65866 XP002264296 the whole document	
A (D12)	CHANG P K ET AL: "The <i>Aspergillus parasiticus</i> polyketide synthase gene pksA, a homolog of <i>Aspergillus nidulans</i> wA, is required for aflatoxin B1 biosynthesis." MOLECULAR & GENERAL GENETICS: MGG. GERMANY 21 AUG 1995, vol. 248, no. 3, 21 August 1995 (1995-08-21), pages 270-277, XP001156368 ISSN: 0026-8925 page 271 -page 273; figure 3	
P,A (D13)	ZHANG A ET AL: "Efficient disruption of a polyketide synthase gene (pks1) required for melanin synthesis through <i>Agrobacterium</i> -mediated transformation of <i>Glarea lozoyensis</i> ." MOLECULAR GENETICS AND GENOMICS: MGG. GERMANY FEB 2003, vol. 268, no. 5, February 2003 (2003-02), pages 645-655, XP002264294 ISSN: 1617-4615 page 647 -page 648; figures 1,2B	
P,A (D14)	LINNEMANNSTÖNS PIA ET AL: "The polyketide synthase gene pks4 from <i>Gibberella fujikuroi</i> encodes a key enzyme in the biosynthesis of the red pigment bikaverin." FUNGAL GENETICS AND BIOLOGY: FG & B. UNITED STATES NOV 2002, vol. 37, no. 2, November 2002 (2002-11), pages 134-148, XP002264295 ISSN: 1087-1845 page 135 -page 138; figure 3 page 140, left-hand column, last paragraph -page 144, left-hand column, paragraph 1	

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
<p>A</p> <p>(15)</p>	<p>LANGFELDER KIM ET AL: "Differential expression of the Aspergillus fumigatus pksP gene detected in vitro and in vivo with green fluorescent protein" INFECTION AND IMMUNITY, vol. 69, no. 10, October 2001 (2001-10), pages 6411-6418, XP002264377 ISSN: 0019-9567 page 6412 -page 6414; figures 1,2</p> <p>-----</p>	

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Information on patent family members

International Application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9946362	A	16-09-1999	US 6015703 A	18-01-2000
			AU 756402 B2	09-01-2003
			AU 2707299 A	27-09-1999
			WO 9946362 A1	16-09-1999
			CN 1310756 T	29-08-2001
			EP 1070117 A1	24-01-2001
			JP 2002506616 T	05-03-2002
			NZ 506792 A	30-05-2003
